

## **Amendments to the Claims**

1 1. (currently amended) A method for transmitting an input stream of  
2 symbols in a multiple-input / multiple-output wireless communications  
3 system including  $M$  subgroups of transmitting antennas, comprising:  
4       selecting, according to channel conditions of the multiple-input /  
5 multiple-output wireless communications system,  $L$  subgroups of the  $M$   
6 subgroups of antennas, where  $L < M$ ;  
7       demultiplexing, the input stream into  $L$  substreams, there being one  
8 substream for each one ~~of  $L$~~  of the  $L$  selected subgroups of antennas;  
9       adaptively modulating and coding each of the  $L$  substreams to a  
10 maximum data rate while achieving a predetermined performance on an  
11 associated channel used to transmit the substream; ~~and~~  
12       space-time transmit diversity encoding each of the  $L$  coded  
13 substreams into a set of output streams, there being one output stream in  
14 each set for each antenna of each one of the  $L$  subgroups of antennas; and  
15       transmitting the set of output streams using the  $L$  subgroups of  
16 antennas.

1 2. (original) The method of claim 1, further comprising:  
2       feeding back, from a receiver, channel conditions; and  
3       selecting the  $L$  substreams to be produced by the demultiplexing  
4 according to the channel conditions.



- 1    3. (original) The method of claim 2, in which the channel conditions  
2    measure a signal to interference plus noise ratio of the output streams  
3    received in the receiver.
- 1    4. (original) The method of claim 1, in which the adaptive modulation and  
2    coding depends on the number  $L$  of the substreams.
- 1    5. (original) The method of claim 1, in which  $L$  is zero to increase an overall  
2    capacity of the system including a plurality of receivers.
- 1    6. (original) The method of claim 1, in which the adaptive modulating and  
2    coding, further comprises:  
3        coding each substream;  
4        interleaving each coded substream; and  
5        symbol mapping each interleaved substream.
- 1    7. (original) The method of claim 1, further comprising:  
2        demultiplexing each output stream into a plurality demultiplexed  
3    output streams;  
4        multiplying each of the plurality of demultiplexed output streams by  
5    an orthogonal variable spreading factor;  
6        adding the demultiplexed output streams, for each output stream, after  
7    multiplication into a summed output stream corresponding to each output  
8    stream; and  
9        multiplying each summed output stream by a scrambling code.



1 8. (currently amended) A system for transmitting an input stream of symbols  
2 in a multiple-input / multiple-output wireless communications system  
3 including  $M$  subgroups of transmitting antennas, comprising:  
4 a switch configured to select, according to channel conditions of the  
5 multiple-input / multiple-output wireless communications system,  $L$   
6 subgroups of the  $M$  subgroups of antennas, where  $L < M$ ;  
7 a demultiplexer configured to split the input stream into  $L$  substreams,  
8 there being one substream for each one ~~of  $L$~~  of the  $L$  subgroups of antennas;  
9 means for adaptively modulating and coding each of the  $L$  substreams  
10 to a maximum data rate while achieving a predetermine performance on an  
11 associated channel used to transmit the substream; and  
12 means for space-time transmit diversity encoding each of the  $L$  coded  
13 substream into a set of output streams, there being one output stream in each  
14 set for each antenna of each one of the  $L$  subgroups of antennas.